

Technology Transfer at JPL

Introduction

JPL developed technologies often have applications outside of NASA. Commercial ventures have licensed many patents and software programs developed here and incorporated them into successful products and services.

Why We Transfer Technology

Technology Transfer is central to NASA's mission. JPL is committed, as part of its contract, to "conduct activities in support of commercial technology partnerships ... which include technology transfer, partnering and commercialization activities, ... [to] seek to enhance the value and contribution of technology developed under the Contract to NASA enterprises and mission programs, the nation's technological competitiveness and prosperity, quality of life, and other national priorities."

JPL developed technologies often have applications outside of NASA. Commercial ventures have licensed many patents and software programs developed here and incorporated them into successful products and services. For example:

- CMOS Camera technology developed at JPL for remote sensing instruments is now in many digital and cell phone cameras worldwide
- Precision algorithms for satellite GPS receivers are now being used in a variety of other fields, all the way from agriculture to telecommunications
- Image analysis software for planetary science is now being used with ultrasounds for early detection of cardiovascular disease

Below is an overview and details of our process. JPL innovators who believe their unique technologies have applications outside of the Lab can contact the Innovative Technology Transfer Partnerships Office for further information on licensing and commercialization resources.

The Process of Technology Transfer

Technology Transfer consists of everything needed to take an idea out of the lab and into a commercial product or service.

JPL has a mature technology transfer process which consists of the following steps.

- Document innovations through a *New Technology Report*
- Protect Intellectual Property (IP) via *Patents and Copyrights*
- *License* IP to commercial partner, or as Open Source or a Mobile App
- Support development of the commercial product by *Working with the Licensee*
- Track progress and successes of licensed technology for *Rewards and Recognition*

New Technology Reporting

Fully documenting your innovation is an important first step to any technology transfer. It forms the basis for future Intellectual Property (IP) rights, and allows you to publish and share your concept with future potential partners.

Furthermore, even technologies that are not likely to be transferred need to be reported. JPL is required to report all “new technologies” to NASA, and *you cannot publish on a new technology as defined below without filing an NTR*

Reportable technologies that should be documented in a Hardware NTR include:

- Devices or other hardware that have not been built before (whether or not it is conceptually described in literature)
- New methods (manufacturing process, data acquisition, data processing, etc.)
- Modifications or improvements to existing methods, devices or other hardware
- Any new application of existing technology
- Any new combination of existing technology

Reportable technologies that should be documented in a Software NTR include:

- New software
- New version of existing software
- Modifications to existing software that add functionality (does not include bug fixes)

Once an NTR is filed, a member of the Innovative Technology Assets Management (ITAM) group will evaluate the innovation for patentable IP, specifically looking at:

- What are the possible commercial applications?
- What are the advantages of this technology compared to the commercial state of the art in this field or the current industry standard?
- What are the disadvantages?
- What is the status of development?
- What are the plans and/or prospects for future development?
- What investments would be required by an outside organization to commercialize the technology?
- Has the technology been publically disclosed and if so when?
- Is there demonstrated interest in the technology from industry?

The evaluator will also assess the NTR for publication in NASA TechBriefs magazine, and possible monetary prizes through the NASA Inventions and Contributions Board Award Program. For questions on this process, please contact [Carla Bagdasaryan](#) at 818.393.3421.

Patents and Copyrights

Intellectual property (IP) rights protect your innovation and the possible competitive advantage that it represents in a commercial product. IP rights allow you to control who can make, use or sell, offer to sell or import your invention. The two most important IP types to JPLers are copyrights and utility patents.

- **Copyrights:** Copyright is defined as “the legal right granted to any author or assignee to exclusive publication, production, sale or distribution of a literary, musical, dramatic, or artistic work.” All software and patterning masks developed at JPL are protected by copyright and owned by Caltech. Copyright does not protect the ideas behind the work, just the expression created by the author. However, because of the strength and ease of copyright licensing and the fast evolution of software technologies, patents for software are generally not pursued by Caltech or NASA. There are exceptions. Please contact us for more information.
- **Patents:** Utility patents grant an inventor or assignee a monopoly to practice or sell a particular invention. They can be obtained for a “machine, manufacture, process or composition” that is “novel and non-obvious”. Patents must be applied for and are examined and granted by the U.S. Patent and Trademark Office.

Typical Criteria for Caltech or NASA Patents: Both Caltech and then NASA will have an opportunity to elect to patent your invention. While many reported inventions are useful, novel, non-obvious and downright extraordinary, typically patents are only pursued if there is a commercial market or licensing potential for the technology.

To Patent on Your Own: Should both Caltech and NASA choose not to patent the invention, the inventor is given the opportunity to do so. In this case, Caltech OGC can prepare a “waiver” that releases the assignment. Please contact us for more information.

Public disclosures (papers or presentations at conferences or meetings attended by non-JPL personnel) can result in a loss of your right to patent. Please file an NTR first!

Patents and copyrights are important tools for technology transfer. They establish the uniqueness of your invention, and are desirable to potential partners seeking to commercialize your technology. For questions on this process, please contact [Dr. Christopher Jagers](#) at 818.393.4904.

Licenses and Royalties

Licenses - Licenses grant an organization the right to use, make and/or sell your copyrighted or patented technology. Without a license, they cannot legally do so. Licenses can be exclusive, exclusive by field of use, or non-exclusive. An exclusive license means that the patent holder agrees not to license the technology to any other party.

- **U.S. Government Licenses** - The U.S. Government has a free license to all IP developed at JPL. However, this license is for “limited rights”, and all IP transfers to the government must be accompanied by a notice of those limitations. Please contact the Software Release Authority (SRA) before transferring software to any Government Agency. U.S. Government subcontractors are also entitled to free licenses for government work, and should apply for them through the site download.jpl.nasa.gov.
- **Research Use Licenses** - Caltech may also grant free, non-exclusive licenses to non-profit organizations who wish to use the IP for research. Such licenses need to be applied for through the site download.jpl.nasa.gov, are vetted by JPL for programmatic impact.
- **Commercial Licenses** - Companies seeking to commercialize JPL IP must negotiate a license with either Caltech or NASA, depending on who elected to patent. Terms and conditions of such licenses are set on a case-by-case basis, and once again are vetted by JPL for programmatic impact.
- **Open Source Licenses** - Open Source Licensing allows software source code to be widely disseminated, improved upon by a large network of external developers and eventually established as a standard, such as Apache. JPL currently allows software to be “Open Sourced” under a BSD style license, if such a release is approved by Caltech OTT, JPL IT Security, Export Control, Line and Program management. Please contact the JPL SRA for more information on the process.
- **Mobile Applications** - JPL has also licensed a number of applications for smart phones and other mobile devices. For more information on this process, please go to the [JPL Mobile Apps Resource Guide](#).

Royalties - Companies that license JPL technologies typically agree to pay certain fees for the license. They also usually agree to pay a small percentage of the commercial sales that result from that license. When either Caltech or NASA do collect fees and royalties from licensing, a portion of the net revenues are shared with the innovators. For example, Caltech will share 25% of the net revenue of any licensing deal with the innovators.

For questions on this process, please contact [Brian Morrison](#) at 818.354.2458.

Working with Licensees

Identifying Licensing Opportunities – Despite all the many advances in Information Technology, the Internet, Social Networking and Marketing, technology transfer is still a contact sport. Most license deals begin with a conversation between two technologists, one a JPL innovator, and the other from the Licensee. The JPLer gives the licensee colleague a description of what the technology is capable of. The Licensee becomes interested, and a company attorney signs an NDA. Then a team from the Licensee comes to hear more, evaluates the business case and eventually becomes convinced that adopting this technology is worthwhile.

Supporting the Licensee – This is only the beginning of the technology transfer process. Often, support from the original inventors for months or even years after licensing is the key to successful development of a commercial product or service. Many licensees will want the inventors of a technology to consult on their projects.

There are several ways for this to occur:

- **Commercial Re-imbursable Tasks** – Commercial companies can sponsor work at JPL for technology development tasks. For more information on how to set up commercial re-imbursable tasks, please see the Commercial Program Office under the [National Space Technology Applications Office](#) (NSTA) Office at JPL.
- **Outside Business Agreement** – JPLers are also able to do work for commercial companies outside of JPL. An Outside Business Application (OBA) must be filed with the JPL Ethics Office (click [here](#)). The Ethics office will evaluate the OBA to determine if the activity creates an appearance of a conflict of interest.

For questions on this process, please contact [Indrani Graczyk](#) at 818.354.2241.

Rewards and Recognition

NASA and JPL will actively monitor the progress of transferred technology and report on successes. Typically, outstanding accomplishments in technology transfer can be eligible for the following rewards.

Space Act Awards - Space Act Awards are awards given by NASA through the Inventions and Contributions Board (ICB) for outstanding scientific or technical contributions sponsored, adopted, supported, or used by NASA which are significant to aeronautics and space activities. Typical criteria for a Space

- The scientific and technical innovation is used or will be used in a mission or program that relates to NASA's space and aeronautical activities
- New Technology must be reported in an NTR
- Additional criteria for four types of awards listed below

| AWARD TYPE | ADDITIONAL CRITERIA | MONETARY VALUE |
|---|---|---|
| Tech Briefs | Publication in Tech Briefs—must have Technical Support Package | \$350 per Contributor |
| Software Available for Public Release Award | Mature/Operational Software developed for customer | \$500 per Contributor or \$1000 if there is only one Contributor |
| NASA Patent Awards | Non-provisional patent filing | \$500 per Inventor or \$1000 if there is only one Inventor |
| ICB Board Action Awards | For software development, a recommendation for a Software Available for Public Release Award must have been received. | \$500-\$100,000 The monetary amount of the award is determined by the significance and value of the innovation to NASA. |

ICB Board action awards require the completion of the NASA form 1329. Before completing the NASA form 1329, please complete the preliminary form so that the Innovative Technology Asset Management Office can determine if the technology is likely to be awarded a Space Act. If so, the full form should then be completed.

The typical Exceptional award is one that is for technology that uses groundbreaking mathematics, science, or engineering. It sets the stage for future advances, and is universally recognized as creative, insightful, and is of significant impact. Commercial value is also considered. For questions on this process, please contact [Dr. Christopher Jagers](#) at 818.393.4904. or visit <http://icb.nasa.gov/>.

Contact Us

For more information about Technology Transfer at JPL, please contact us:

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